

CLAIMS

What is claimed is:

1. A microscale structure, comprising:
 - (a) a substrate;
 - (b) a structural dielectric arm supported by the substrate and having upper and lower surfaces suspended above the substrate, and having a via registering with the upper and lower surfaces;
 - (c) a first conductive element contacting the lower surface; and
 - (d) a second conductive element contacting the upper surface and electrically communicating with the first conductive element through the via.
2. A microscale switch having a conductive interconnect, the switch comprising:
 - (a) a substrate having a first conductive interconnect and a stationary electrode;
 - (b) a first dielectric layer formed on the first conductive interconnect;
 - (c) a first stationary contact attached to the first dielectric layer and having electrical communication with the first conductive interconnect;
 - (d) a movable structural layer including a bottom surface suspended over the first stationary contact and a top surface opposing the bottom surface;
 - (e) a movable electrode attached to the bottom surface of the structural layer whereby the movable electrode is separated from the stationary electrode by a first gap;
 - (f) an electrode interconnect attached to the top surface of the structural layer and connected to the movable electrode for electrical communication; and
 - (g) a movable contact attached to the bottom surface of the structural layer whereby the movable contact is separated from the first stationary contact by a second gap and positioned to contact the first stationary contact when the structural layer moves towards the first stationary contact.
3. The switch according to claim 2, further including a contact interconnect

formed on the top surface of the structural layer and in electrical communication with the movable contact.

4. The switch according to claim 1, further including:

(a) a second conductive interconnect attached to the substrate;

(b) a second dielectric layer formed on the second conductive interconnect; and

(c) a second stationary contact attached to the second dielectric layer, having electrical communication with the second conductive interconnect, and positioned for contacting the movable contact simultaneously with the first stationary contact when the structural layer moves towards the first stationary contact, whereby the first and second conductive interconnects are in electrical communication through the movable contact and the first and second stationary contacts.

5. The switch according to claim 4, further including a contact interconnect formed on the top surface of the structural layer and in electrical communication with the movable contact.

6. The switch according to claim 5, wherein the movable contact includes a first and second contact portion attached to the contact interconnect and in electrical communication through the contact interconnect, wherein the first and second contact portions are positioned to contact the first and second stationary contacts, respectively, when the structural layer moves.